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ABSTRACT

The purpose of this collection of environmental education units, written by teachers and environmental educators, is to develop in students a sense of wonder, curiosity, and interest about the environment. The 26 interdisciplinary activity units are designed to be used as pre-activities or follow-up activities to other outdoor studies in the elementary grades. The booklet contains a unit for each letter of the alphabet, such as, A-Ants, B-Buds, C-Compost, D-Dirt. Each activity unit identifies the appropriate grade level, optimal time of year for teaching the unit, the objectives, needed materials, background information, pre-activity questions, the activity, and post activities. The units are for kindergarten through fourth grade, and are designed to utilize the out-of-doors. The activities in the unit include math activities, art activities, sensory awareness skill development, and language art activities. Predominant throughout the units is the emphasis on inquiry and discovery. (TK)

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Chester Area Schools
Chester, South Dakota

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We sometimes forget that students are waiting to learn. Almost everything they do is a learning experience. They learn by listening to a story, working a math problem, eating lunch with their classmates, riding the school bus, walking home, or just listening and watching other people. These learning experiences should be fun for your students. They should lead beyond the first experience to the second, third and on and on. These experiences will go on as long as students keep their sense of wonder.

Nature is here for those who can see, hear, feel, taste and touch. It's the robin in her nest, the animals in the water, the flower hiding in the grass, the icicles hanging from the roof, the rains, the rainbow in the sky. It's the squish of mud between the toes, the taste of cold snow, the sound of a scolding squirrel, the feel of rough bark, a thorn, or a milkweed pod.

Nature's Alphabet is a collection of units in which laughter, curiosity and learning and sharing experiences are more important than a grade or score. The units lead the child into the world about them. They awaken a sense of wonder, interest, and curiosity. "I wonder why --?" "What will happen if --?" "Why does --?"

Nature's Alphabet is a group of environmental units that can be used an individual units or as pre-activities or follow up activities to other outdoor studies.

Nature's Alphabet was compiled and designed by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area School No. 34, Chester, South Dakota. Several of the units included are adaptations of ideas submitted by project teachers of this program.

A - ANTS

MAKING AN ANT FARM

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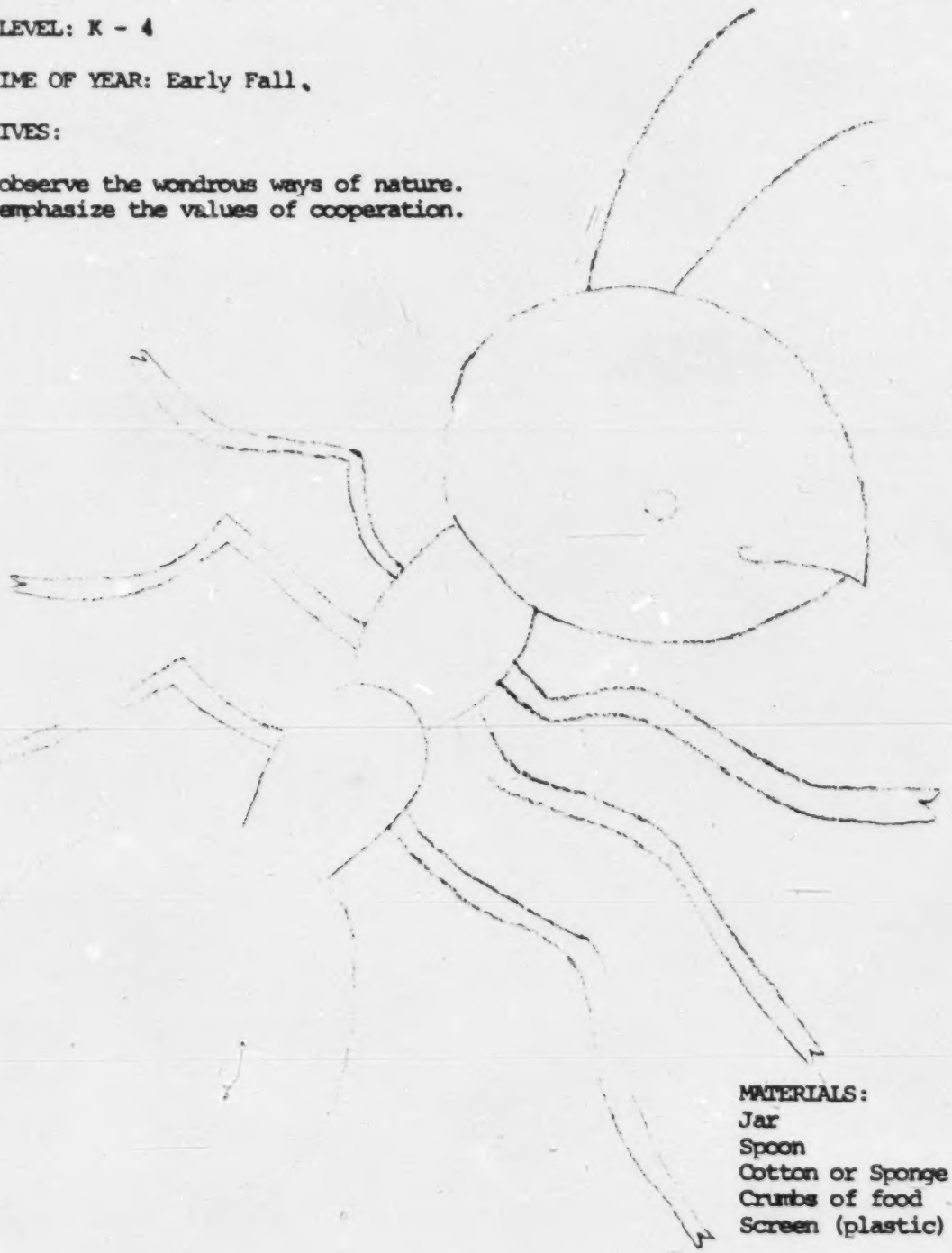
Written by Barb Hyland, Instructor, The Interlakes Environmental and Outdoor Education Program, Chester Area Schools, Chester, S.D. 57016

GRADE LEVEL: K - 4

BEST TIME OF YEAR: Early Fall.

OBJECTIVES:

1. To observe the wondrous ways of nature.
2. To emphasize the values of cooperation.



MATERIALS:
Jar
Spoon
Cotton or Sponge
Crumbs of food
Screen (plastic)

BACKGROUND:

Ants are fascinating! Scientists have discovered that nearly every important human industry and many human habits and characteristics are common among ants. In the anthill can be found two kinds of ants, the queen and man, many workers. The queen has the most important job, laying eggs. The workers carry on all of the other activities. Each worker has a specific job, some are builders, carpenters, doctors, farmers, masons, miners, nurses, policemen, servants, soldiers, undertakers, etc. Their cities contain hospitals, cemeteries, playgrounds and nurseries; all connected by paved roads or tunnels. Some anthills even contain beauty parlors and dairy barns.

Ants have two food requirements; it must be liquid or easily scraped into tiny pieces. Dead insects are a favorite meal for most ants. Plant juices, fruit and seeds are also enjoyed by the ants.

PRE-ACTIVITY:

What is an ant?
Where do ants live?
What do you think an anthill looks like outside? Inside?
Discuss the structure of an anthill (the tunnels and rooms).
Have you ever watched the ants around the anthill?
What were they doing? (Discuss the different jobs of ants).

LEARN: The following fingerplay:

AN ANTHILL

Once I saw an anthill (fist) with no ants about,
So I said, "Dear little ants, won't you please come out?"
Then, as if the little ants had heard my call ---
One, two, three, four, five came out! (Fingers up on each number).
And that was all.

PROCEDURE: (Field trip)

Find an active anthill, and dig to the center of it. Carefully lift the gravel and dirt out and place it in a gallon jar or glass container. While digging try to take samples from different areas of the hill, by doing this you will be getting a variety of ants, activities and hill materials. The ants will rebuild the hill in your jar. Take the jar back to the classroom. Place a piece of sponge or ball of cotton on top of the dirt, and water every few days.

Note to the teacher: It is a good idea to know where the anthill is before the field trip; let the children discover the anthill on the field trip.

FEEDING THE ANTS:

Crumbs
Bits of apple
Caterpillars
Freshly killed insects

Cover the top of the jar with a screen. For the first few days cover the sides of the jar with black construction paper. The ants will dig their tunnels on the edge of the jar, and when the paper is removed, the children will be able to observe the ants working.

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B-BUDS

FORCING BUDS INTO BLOOM

Written by Barb Hyland, Instructor, The Interlakes Environmental and Outdoor Education Program, Chester Area Schools, Chester, S.D. 57016.

GRADE LEVEL: K-4

BEST TIME OF YEAR: Early spring

OBJECTIVES:

1. To acquaint students with the characteristics of a bud.
2. To introduce students to the conditions a bud needs to open.
3. To familiarize the students with the many kinds of trees and shrubs in their community.

MATERIALS:

Branches with buds
Water
Plastic bags (lightweight)
Household ammonia (optional)

BACKGROUND:

In South Dakota, the winters are long and spring seems far away. When the students get restless and anxious for spring to come, try this activity. The activity deals with "bringing a 'sign of spring' into the classroom". With the excitement of doing the actual experiment, the students are learning valuable lessons on how and why buds do open and bloom.

PRE-ACTIVITY:

What are buds?
Why don't shrubs and trees bloom in the winter?
When do buds start to bloom?
What kind of weather is it then?
Are all buds the same size?
Do all buds bloom at the same time?
When do buds start to form on the plants?
(Discuss when buds form and what kind of conditions are necessary for the bud to bloom.)

PROCEDURE: (Field Trip)

Take a field trip to an area where there is an abundance of different kinds of shrubs and trees. Collect samples of branches to experiment with. Try to gather a variety of branches: Spirea, apple tree, lilac, poplar, chinese elm, cottonwood, oak, honeysuckle, etc.

(A word of warning: Before asking students to bring in branches, be sure they ask the owners permission to cut them.)

FOLLOW UP:

After a short discussion about the branches, you are ready to begin. Soak branches in lukewarm water for ten minutes before putting the cut ends into a pail or large container of water at room temperature. Cover with a large plastic bag (lightweight) to conserve moisture. Fasten cover to sides of the container with tape or string.

OR:

Tie a knot in one end of a large plastic cleaner bag. Soak a cloth in ammonia and drop it into the bag. Put the budding branch in the bag and tie the other end. After thrity minutes, take the branch out and place it in a container of warm water and keep it at room temperature - but out of direct sunlight - until the buds burst into bloom.

Some buds are regulated by the day length - the ratio of lightness to darkness in a day. This is a protective measure for the plant so they won't bud during a warm spell in January or February and then freeze.

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C-COMPOST
WHAT'S IN COMPOST

Written by Mona Reisig, Third grade teacher, Chester Area Schools, Chester, S.D. 57016.

GRADE LEVEL: 2-3

BEST TIME OF YEAR: Fall

OBJECTIVES:

1. To employ materials taken from the soil by returning them to the soil.
2. To provide the students with the actual experience of making and using compost.

MATERIALS:

Wooden box or small fenced area, leaves, garden clippings, animal wastes and other compost material.

BACKGROUND:

This is an excellent unit to introduce natural fertilizers, air pollution and how natural things are returned to the soil. The activity can be a combination of providing for our needs of fertilizers and eliminating some air pollution. Since we need fertilizers why not make our own from leaves instead of burning them? By making compost students are also observing how plant materials are returned to the soil.

PRE-ACTIVITY:

1. How many have ever heard of compost?
2. What do you do with your leaf rakings in the fall?
3. What does burning do to our air?
4. Do you suppose we could do anything else with these leaves to make them more useful?
5. What happens to the leaves in our groves and forests where we don't rake?

Explain that materials taken from the earth by growing plants need to be replaced. This is done either by man made fertilizers or a natural cycle of decaying materials being returned to the soil. By making compost we are saving food taken from the soil by restoring it to the soil.

Discuss further what may be used in a compost. Garden plant clippings, leaves, vegetables, things from the earth can be returned to help the soil.

PROCEDURE: (Field Trip)

Set up a wooden box or a fenced area in an undisturbed area. Have the students gather leaves and other compost materials and place in the box. Spread the compost material 6" thick then put a thin layer of soil over this, begin with compost material again. The mixture should be watered frequently to speed decay. Allow the compost to decay for about six months before using it.

FOLLOW UP:

Try making the compost in the fall. Then for a spring activity use the compost around new trees and shrubs around the school.

To culminate this activity into home usefulness discuss with students what we can do to make this at home. Suggestions may be to form a block or neighborhood compost if they live in town. A garden edge or a lawn edge may be convenient if students live in the country.

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D-DIRT

DISCOVERING DIRT

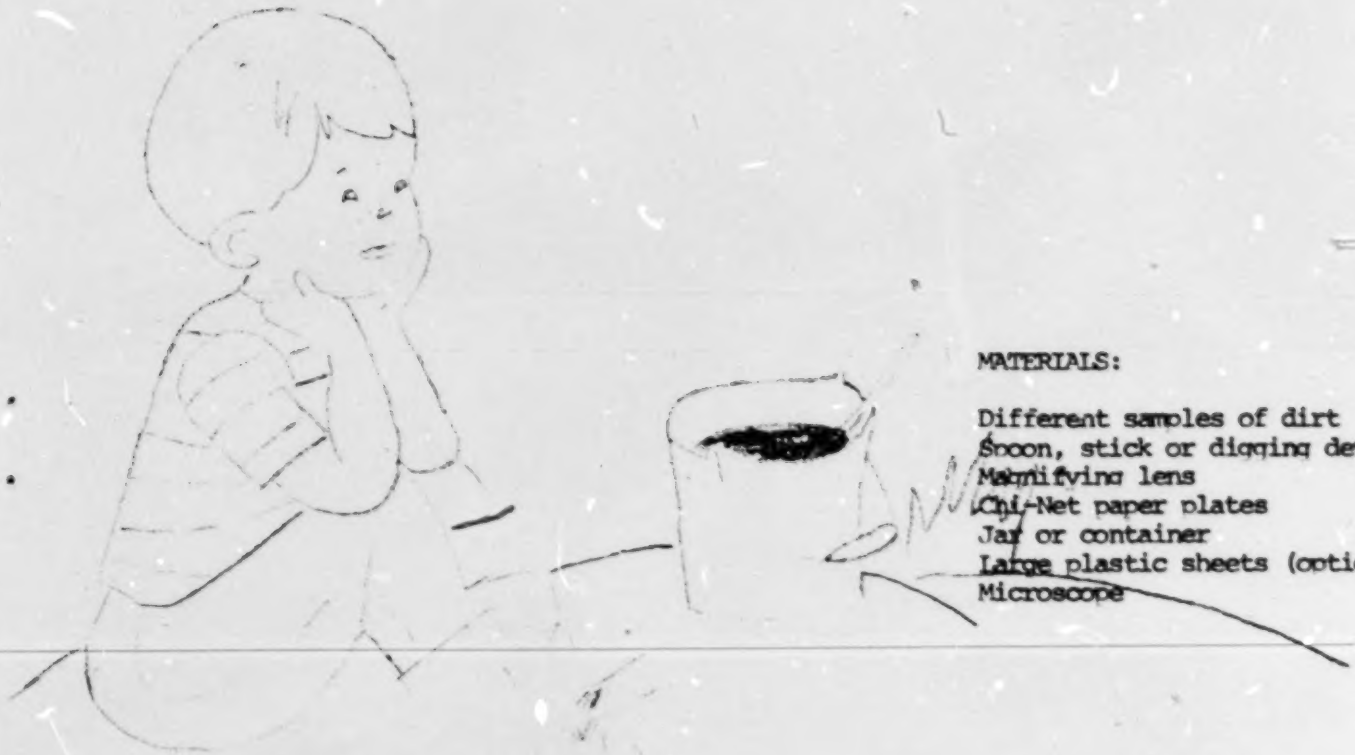
Written by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016. Adapted from Science and Children.

GRADE LEVEL: K-2

BEST TIME OF YEAR: Early fall and late spring

OBJECTIVES:

1. To assist students in discovering the different properties of various kinds of soil.
2. To develop a better understanding and appreciation of soil.
3. To develop awareness to the many kinds of plant and animal life in the soil.



MATERIALS:

Different samples of dirt
Spoon, stick or digging device
Magnifying lens
Chi-Net paper plates
Jar or container
Large plastic sheets (optional)
Microscope

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BACKGROUND:

One segment of our environment, the soil, seems to easily attract the interest of young children. In play they explore sand, rocks and dirt whenever possible. Why not take advantage of their natural curiosity about soil, and develop a better understanding and appreciation of it. The following activities utilize a child's interest in playing in and with the dirt.

PRE-ACTIVITY:

What is dirt?
What is dirt used for?
What lives in dirt? (Plants and animals.)
What part of the plant lives in the dirt?
Is soil all the same color?
Does dirt all feel the same?
Are all particles of dirt the same size?

FIELD TRIP:

Explain to the class that the field trip outdoors will be for the purpose of exploring the dirt. Lead the students into the discovery of the different textures of soil. Look for areas where the soil is packed hard (perhaps on the driveway or path). The baseball field will have areas where the soil is loose and dusty. Under low shrubs the soil is likely to be loose, crumbly and damp.

If possible, go to a gravel pit and observe the different layers of soil. Is each layer the same color? Is each layer the same size? Check the texture of each layer, look for plant and animal life. Collect a sample of each layer and take back to the classroom to explore.

POST-ACTIVITY:

Take the samples you have collected back to the classroom and have the students put their samples on paper plates, and let them explore the dirt. Encourage close examination by asking questions such as the following:

1. Have you seen soil which has a texture like this before? Where?
2. Are all the samples of soil the same color?
3. Do all the soils feel alike?
4. Let the dirt sift through your fingers. Does each sample sift the same as the others?
5. Squeeze a handful of each sample. What happens? Does the soil stay in a ball or fall apart once you release your grip?

Now, take a closer look. Give each student a spoon, stick or some other tool for digging, and let the students explore for other forms of materials which might be hiding in the soil. Earthworms, insects, (both dead and alive), leaves, sticks, bark and small rocks are common materials that can be found in the soil. The use of a hand magnifying lens and a microscope is recommended.

FOLLOW-UP ACTIVITIES:

There are many things you can do with a soil study, listed are some ideas:

1. After studying the soil samples and discussing the different types, try planting seeds. Be sure to use as many different types of soil as possible, such as organic, clay, sandy, etc. Plant the seeds, water and give each plant the same amount of sunlight. This experiment should draw some interesting conclusions. Let the children draw their own conclusions.

2. If the students observed the soil profile on the field trip, try constructing soil layers. This can be done by gluing strips of soil to tagboard. Encourage students participation by asking questions.

   What kind of soil is on the top?
   What is the soil called?
   What color is it?
   What kind of soil is the next layer?
   What is the name of this soil?
   What color is it?
   What does it feel like?
   Does the next layer have a different texture?
   What is it called?
   What is is made of?
   How does the next layer differ from the rest?
   What is it called?
   What is this layer made of?

3. Try soil painting. Here are the directions:

   1. Spread out your soil samples to see what kinds you have.
   2. Decide on a picture. Either have the children draw a picture, or ditto pictures for each child.
   3. Mix 1 part glue and 1 part water.
   4. Use a paint brush to apply glue on areas of the picture you want to cover with soil.
   5. Sprinkle soil onto the glue. Leave the soil on the paper until the glue is dry. Continue until all desired areas are covered by soil.
   6. Color or paint the other areas as desired.
   7. It's not difficult to preserve your soil painting. When the glue is completely dry, shake off excess soil and repair any areas that need it. Spray with plastic or lacquer.

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E-EARTHWORMS

RAISING EARTHWORMS

Written by Barb Hyland, Instructor, The Interlakes Environmental and Outdoor Education Program, Chester Area Schools, Chester,S.D. 57016.

GRADE LEVEL: K-4

BEST TIME OF YEAR: Early fall or late spring

OBJECTIVES:

1. To acquaint students with the importance of earthworms.

MATERIALS:

Jar (large)
Screen
Hand spade
Earthworms

BACKGROUND:

Earthworms and also night crawlers, are a common worm found in moist warm soil in many parts of the world. Earthworms contribute to the growth of plants. The worms help break down the decaying matter in the soil. The air necessary for plant growth enters the soil through the tunnels dug by earthworms. They are important food for birds, also. Earthworms feed on dead plant material in the soil. The earthworms in an average acre of good fertile soil will consume, digest and revitalize over 15 tons of earth in a years time.

PRE-ACTIVITY:

Learn: A WEE LITTLE WORM

A wee little worm in a wee little hole
Sang, happy as he could be
"Oh, I live in the heart of the whole round world
And it all belongs to me".

Ask these questions to create an interest:

What is an earthworm?
Where do earthworms live?
Why do you think they are called earthworms?
What do earthworms eat?

PROCEDURE: (Field Trip)

Go on an earthworm hunt. Hunt around, (moist soil is important), look under rocks, dig into the soil. Dig around until you find some earthwroms. Fill the jar about 3/4 full of good rich soil, add some earthworms. Take the jar back to the school. Cover the top of the soil with burlap, add water. For the first few days cover the sides of the jar with black construction paper. The earthworms will dig tunnels along the edge of the jar and when the paper is removed the students will be able to observe the earthworms easily.

Keep the jar in a protected, shady area. Feed the worms at least once a week. Earthworms can be fed almost any organic substance that breaks down easily — table scraps, coffee grounds, cornmeal, kitchen fat, discarded vegetable or leaves.

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F-FEEDERS

FEEDING THE BIRDS

Written by Barbara Hyland, Instructor, The Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, S.D. 57016.
Adapted from the Jack and Jill Magazine, October, 1972.

Grade Level - K-4

Best Time of Year - Anytime

OBJECTIVES:

1. As an art project, to construct a bird feeder.
2. To study the birds that are common to our area.

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BACKGROUND:

Winter may be a dull period for some people, but not for the birds that spend the season where snow and ice storms are common. They may have to work extra hard to keep alive. Your students can help to keep them healthy and strong. The best way to lure birds into staying near homes and schools is to provide a snack bar. What a thrill when the first customers arrive!

Have the students make some different feeders for your bird feeding areas. The birds in your school yard will like the variety of food and feeding, and you'll have the fun of watching them. You don't have to wait until snowy weather to make the feeders. Most birds pick their feeding areas before the food becomes scarce. September and October are good months to establish feeding areas. But, remember, once you start feeding the birds you are obligated to continue throughout the winter. After they start using the feeder, they probably won't eat anywhere else.

PRE-ACTIVITY:

Read the following story:

WELCOME BIRDS

Would you like to speak bird language? Would you like to be able to say, "Welcome, birds?"

You don't need to learn how to whistle. You don't need to learn any strange sounding words.

The way to say, "Welcome, birds" is to attach a bird feeder to a tree in your yard or to your window sill. You can buy a bird feeder at the hardware store, or ask someone to help you make one.

A good place to put a bird feeder is on a tree limb that's low enough for you to reach. Or, you might choose a window sill that is close to some bushes. Birds don't feel safe in the open. They like lots of hiding places nearby.

Now, ask your mother if you can have a handful of oatmeal or bread crumbs, or a big dab of peanut butter. Most birds like these foods as much as you like ice cream cones. Birds also like unsalted nuts, sunflower seeds, and suet. Suet is a kind of dry, hard fat that you can buy from the butcher.

After you've filled your bird feeder, don't ring the dinner bell. Don't call out, "Soup's on!" Just wait. And be patient. It may take the birds a few days or even a week to discover their new "restaurant". But once they do, business will be brisk.

And you'll be talking the language that birds understand.

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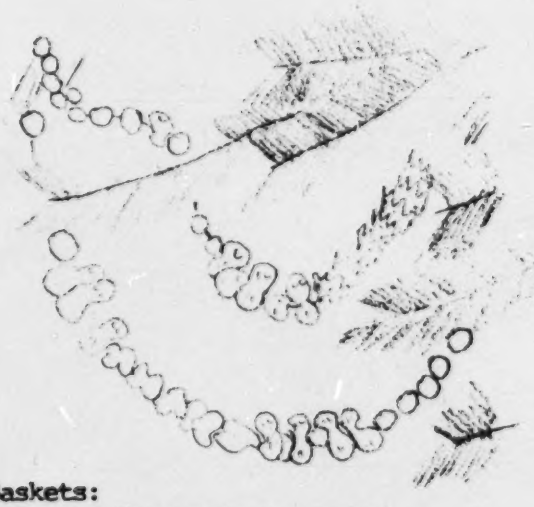
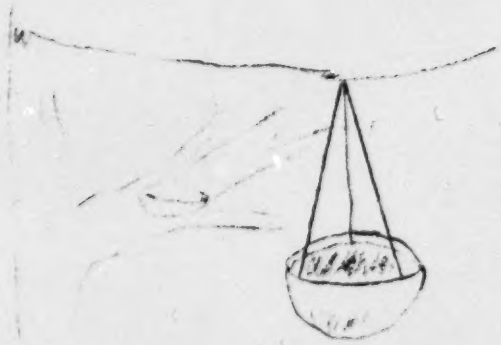
ACTIVITY:

Encourage students to keep a record of the birds seen and the date of their arrival. If a bird is not quickly named, students should write a description of important markings and size and shape of the body and beak. Does it eat from the feeder or scratch for seeds spilled out on the ground? When it eats is sometimes an important clue to identification.

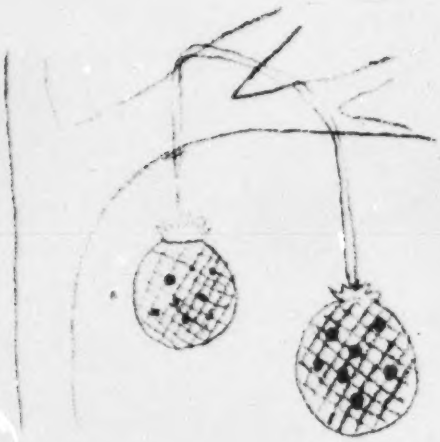
The following are some ideas and directions for making feeders:

Tree Garland:
Use a strong needle and thread peanuts, popped corn, berries and anything else birds might like into a long garland. Knot the ends of the garland and hang the garland over tree branches.





Fruit Baskets:
After your morning orange or grapefruit, scrape out all the pulp. Poke three holes an equal distance apart near the top of the rind. Fill the basket with various kinds of food scraps. Pull strings through the holes and hang from a branch or clothesline. You can omit the holes and cords and wedge the basket firmly into crotches of trees.



Snowballs:
Mix 2 parts suet with 1 part bird seed. Pack into balls about 3" in diameter. Place each ball in the center of an 8" square of net. Gather the ends together and tie them next to the ball with one end of a strong 24" cord. Tie another ball at the other end of the cord. Put the feeder over a tree branch.

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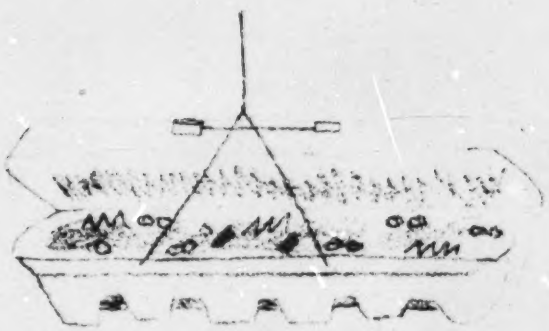
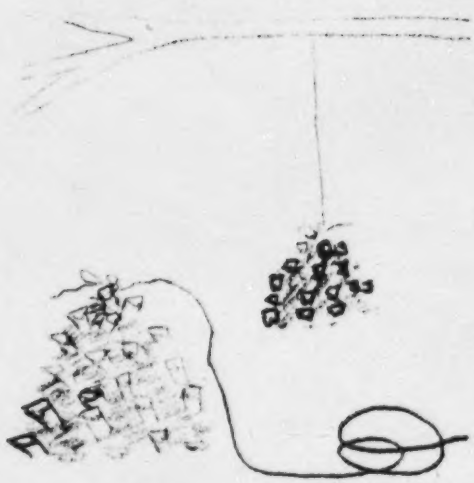
Bird Smorgasbord:
Make this feeder from an egg carton. Put a 40" string through holes in the flap crease of bottom section. The flap can be a landing for the birds. Pull a 36" string through the two holes in the top. Tie it close to the carton, half way between the holes. Bring the 40" cord double from the bottom and after 4" of space knot it with the top string. Allow another 6" and knot string again. Fill the tray with bird goodies. Tie the string ends around a tree branch.





Stuffed Cones:
Tie one end of an 18" string around the top of a large pine cone. Then stuff peanut butter and bread and other food scraps between the scales. Make several cones and hang them from tree branches.

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G-GRASS

GROWING GRASS

Written by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016. Adapted from the Instructor Handbook "Easy to Make".

GRADE LEVEL: K-2

BEST TIME OF YEAR: Anytime

OBJECTIVES:

1. To develop a better understanding of soil.
2. To develop an awareness of what conditions a seed needs to grow.

MATERIALS:

Tin cans
Construction paper
Sand
Pebbles
Soil - (rich organic and clay)

BACKGROUND:

Studying the growing properties of soil and the growing process of a seed can lead to an amusing science lesson. This two fold activity of soil properties and the growing process can lead to a classroom race. This is very appropriately used with the activity, "Discovering Dirt".

PROCEDURE:

1. Cover each can with construction paper, and add faces.
2. Divide the class in half. One half of the class will make "Hairy Harrys". In their cans, place a small layer of pebbles, a small layer of sand and a larger layer of rich organic soil. Then plant grass seed. The other half of the class will make "Bald Berts". Bald Bert's can will be filled with a small layer of pebbles, a small layer of sand and a larger layer of clay soil. Then plant grass seed. Naming these containers has a significance. The children will discover why.
3. Place the containers near a window and water carefully. In no time at all Harry will need a hair cut and Bald Bert will remain bald.

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H-HOPSCOTCH

ENVIRONMENTAL HOPSCOTCH

Written by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

GRADE LEVEL: K-4

BEST TIME OF YEAR: Anytime

OBJECTIVES:

1. To recognize and identify some of nature's characters.
2. To improve large motor skills.

BACKGROUND:

Hopscotch, a very old game, can have a new and interesting approach. It can be used as a game of recognition and identification of many of nature's characters. Hopscotch is a good way to either review or introduce another activity or it can be just a spare time project.

PRE-ACTIVITY:

Use this game as a test to see how much the children know about their environment. It could be used as either a pretest or a post test.

PROCEDURE:

1. Set the game up on brown wrapping paper, just like regular hopscotch.

2. Place in the squares pictures of birds, animals, insects, animal tracks, shapes, colors, etc. Almost anything you want to study could be used.

3. Take turns like in regular hopscotch. The object of the game is to name all the pictures correctly.

4. Throw the marker, name the picture. If correct, the child can hop. If incorrrect, the child looses a turn. The child who completes the whole game first is the winner.

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I-ICE

THE ICE CUBE GAME

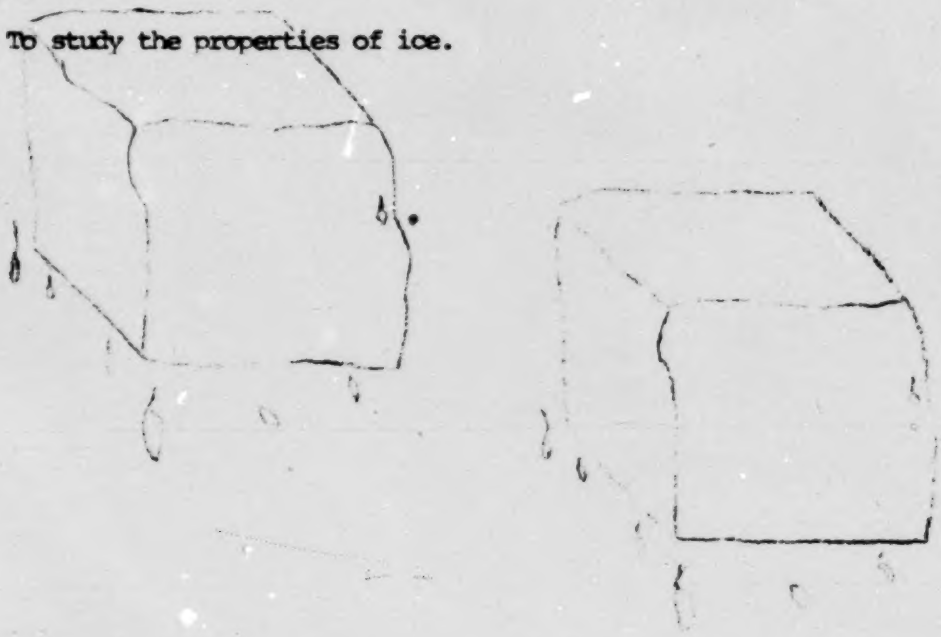
Written by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016. Adapted from the Environmental Science Foundation Curriculum, Golden Valley, Minnesota.

GRADE LEVEL: K-4

BEST TIME OF YEAR: Anytime

OBJECTIVES:

1. To study the properties of ice.



MATERIALS:

Ice cubes
Paper towels

BACKGROUND:

Who can melt the ice cube the fastest? Who can make theirs last the longest? (Anything goes). These games can be used to introduce a unit on ice or winter, or just in a lesson by itself. The main point is to get children to realize a need to collect information. The student with the most relevant information should win the game. This information may have been picked up through past experience, or it may be picked up from the game. Don't give the students any clues; let them go on their own. After this is finished, put an ice cube on a paper plate and a snowball on another. Have them guess which will melt fastest.

PRE-ACTIVITY:

What happens to water when it gets real cold?
What is ice?
How does it feel?
What happens to ice when it is allowed to get warm?
Which melts fastest, an ice cube or a snowball?

PROCEDURE:

1. Children are always amazed at the actual process of water changing to ice. As a winter activity have the children make the ice cubes. Set an ice cube tray full of water on a window sill. Let the children take turns checking to see if it's ice. When it has turned to ice, then proceed to play the game.

2. Ask: Who can get their ice cube to melt the fastest?

3. Play the game. (Students may want to play it more than once.)

4. As a class, talk about the collected information.

5. Try the reverse game of preserving an ice cube as long as possible.

6. Try ice and snow.

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J - JOY

A JOY BREAK

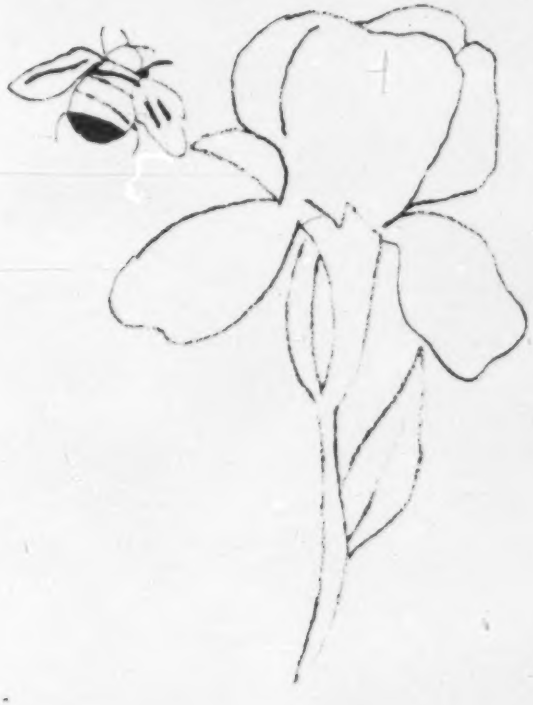
Written by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

GRADE LEVEL: K-4

BEST TIME OF YEAR: Anytime

OBJECTIVES:

1. To study the meaning of joy.
2. To create an activity for self expression.



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BACKGROUND:

Someday when you need to break the routine of an average day, try this activity. It will relieve the tension and may prove to be a very exciting way for the students to express some of their own opinions on life.

PRE-ACTIVITY:

1. What does joy mean to you?
2. Define joy and how joy is a matter of opinion. Joy or happiness will all depend on the person. Discuss moods and how moods sometimes play an important part in our decision making.
3. Discuss living and non-living things and how they can be humorous.
4. Discuss things that are sad, why they are sad, and if there is any way of making them happy again.
5. Discuss ways that make you happy, others happy, animals happy, etc.

Learn: The following fingerplay.

THINGS I SAW

I heard a bee go buzzin' by.
(point hands)
I saw two butterflies in the sky.
(hold up two fingers)
I watched three bunnies hop down the lane.
They jumped in a hole before the rain.
(Put thumb and forefinger together to form hole)

FIELD ACTIVITY:

Any area; the schoolyard, park, Wetlands or any place with a variety of natural objects to explore. Have the students look for things that mean joy to them. Look for something that would make someone else happy; such as seeds, berries and worms for birds; buds and leaves for trees. Find as many things of joy as you can. Look for things that seem sad, try to find out why they are sad. Bring some of the objects back to the classroom.

POST ACTIVITY:

Have the students create a picture or collage with the objects. Underneath the picture, write a brief story or explanation of why these objects made you happy. Younger students can tell why and the teacher can record the story for them. The same thing can be done with sad objects -- telling why they are sad and what could be done to make them happy.

K-KNOTS
KNOT WATCH

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Written by Major L. Boddicker, Director, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

GRADE LEVEL: K-4

BEST TIME OF YEAR: Anytime. You can expect the most variety of life to be present in knot holes in early fall or late spring.

OBJECTIVES:

1. To demonstrate the concept that plants and animals depend on each other.
2. To demonstrate the idea that the environment is in a continuous cycle of death and rebirth in new life.
3. To demonstrate that things happen to trees which harm them, but the overall effect is both bad and good for man and animals as a result of the damage.

EQUIPMENT:

1. Bags and jars for collecting bugs, moss, fungi, etc
2. Screwdriver or jack knife for probing the knots.

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BACKGROUND:

Knots are sort of blah things, nobody really cares much about them, or know much about them. But they are there and surprisingly they have a very important role in nature.

Knots are generally formed in two ways: Most knots are the results of branches dying naturally as the tree grows. The lower limbs are shaded out and seek to have an important function for the tree. The tree responds by self pruning. The branch dies and the growing part of the tree grows around and eventually completely or partially covers up the scar the branch leaves. This type of knot may not be visible on a living tree, but will show up as a beautiful blemish on boards cut from the tree. These knots are very important to man for we judge the beauty of some woods on color, shape and number of knots which are present. We value knotty pine for decoration on walls, knots in walnut, oak and maple for some types of furniture and gunstocks. These types of knots are pretty but they weaken the structural strength of the boards. So, if you are building a house, it is not good to use knotty boards. When you build table tops or cover walls it is fine.

Knots also form around scars on trees which are caused by wind damage, animal damage or other kinds of mechanical damage. When we get cut we bleed, get a scab and eventually a scar forms. The same things happen in trees. Sometimes the scar is too big for the tree to repair and the cut stays open. Then beetles drill holes into the dead heartwood of the tree, then fungi and ants follow. Then woodpeckers drill holes in the knot to get the bugs or to make a nest. After the woodpecker leaves a squirrel, mouse or a bat will use the hole as a home while the tree continues to grow around the knot. As the tree is growing on the outside and above, it is dying and rotting on the inside. The process of recycling the nutrients tied up in the dead wood goes on while living wood is being made.

The whole process is quite interesting.

PRE-ACTIVITY:

Ask questions about trees and how they grow, live and die.

1. How are trees used by animals and other plants? List the ways.
2. What are knots? How are they made? Are they good or bad? What does that depend on? How are they used? Let's study them.

Select teams to do different knot projects:

Art: Draw or photograph different types of knots. Draw or photograph different ways plants and animals use knots.

Science: Collect the bugs. moss, mold, toadstools, animal signs in and around knots. What life depends on knots? List them. Which kinds of trees have the most knots?

Social Studies: How are knots important to us? Get a knotty board and a knot free board. Do an experiment to see which breaks easiest. Which is the prettiest? Vote on it.

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FIELD TRIP:

Take a walk around the school, a park or anywhere there are mature trees. Have the students select trees and count the knots they can see. Have them record the animals and plants they find in the knots and collect them. Have them record the shape and size of the hole in the knot. Have them determine what caused the knot.

FOLLOW UP:

Collect the data and record it. Which kind of tree averages the most knots; the biggest and smallest knots? Which tree has the best knots for woodpeckers and squirrels? What do the knot shapes remind the students of? Draw in detail the favorite knot shape and have the students use it as the mouth of a face or an old person, or a monster.

What is the cause of most knots? What effect does the knot have on the tree? What does it to do the tree?

In the booklet, "Nature's Art" is a unit on drawing and shading trees by Ruby Kuchenbecker that has some excellent suggestions for drawing and shading knots. Does the age of the tree have anything to do with the number of knots on it? Are knots important?

L-LEAF

STUDYING LEAVES

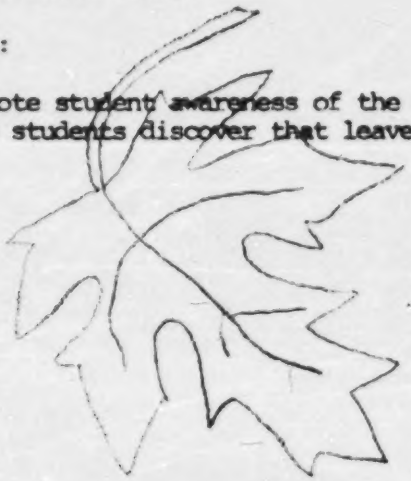
Written by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota, 57016.

GRADE LEVEL: K-2

BEST TIME OF YEAR: Fall

OBJECTIVES:

1. To promote student awareness of the vast variety of leaves.
2. To help students discover that leaves have different forms and shapes.



MATERIALS:

Paper bags

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BACKGROUND:

Much too often we miss the true perfection and character of a leaf because of the vast number of leaves. Try considering a few leaves by themselves.

Many things can be considered in a study of leaves. Notice the shape of the leaves. Do all leaves look and feel the same? What do leaves smell like? How do leaves grow on a branch?

PRE-ACTIVITY:

What are leaves?
What do they do?
What color are they?
Are leaves all the same color?
Do some leaves stay green?
Why do some trees lose all their leaves?
Do evergreen trees lose their leaves?

FIELD TRIP:

Give each student a bag for collecting leaves. Then allow the students to explore a shelterbelt or a grove of trees. Give the students a few examples of leaves to look for. Such as 2 green leaves, 3 yellow leaves, 1 triangle shaped leaf and 1 leaf that is more than one color. Also, let them discover other things. Have them look for a leaf that feels fuzzy or smooth. Are all leaves the same size? Look for large and small leaves. See if they can find an unusual leaf, something maybe nobody else noticed.

POST ACTIVITY:

Discuss the leaves. Lead the students to observations such as: Are leaves the same color? Are all leaves the same shape? Are all leaves the same size? Do trees usually grow the same size? Do trees usually grow the same color, size and shape of leaves?

Have the students use some of their leaves as an art project. Make leaf characters. Children can make birds, animals, people; almost anything. Use the leaf as the main part of the character and with paints and colors, add interesting highlights. Or, draw a picture and add leaves for focal points.

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M-MATH

MATH ALL AROUND US

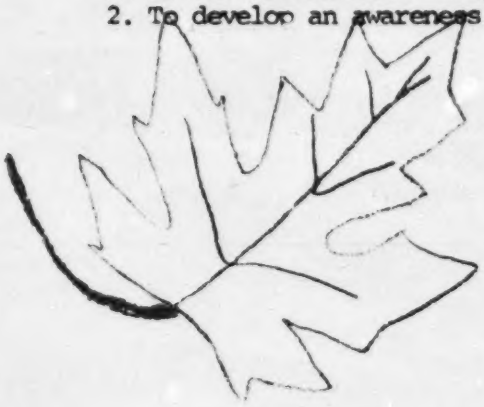
Written by Cynthia Vance, First Grade Instructor, Washington Elementary School, Madison, S.D. Adapted by the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

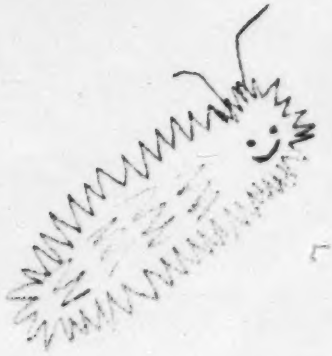
GRADE LEVEL: K-2

BEST TIME OF YEAR: Spring or fall

OBJECTIVES:

1. To use nature as a study area to complete math problems.
2. To develop an awareness and appreciation for natural objects.





MATERIALS:

Cards with math problems stated on them.

BACKGROUND:

Children need to work with concrete objects, especially in math. This unit is designed to help either introduce or review a math problem. By gathering objects on a field trip, students can either work the problems given to them by the teacher or make up their own.

PROCEDURE: (Field Trip)

This activity can easily be accomplished within walking distance of the school. Divide the class into working groups, giving each group some problem cards to complete. Explain to the class that they must find the correct objects to complete their cards. These math cards can be set up 3 ways:

1. 2 red 's + 4 red 's =
2. stones + stones =
3. 2 green + 6 green =

After returning to the classroom, paste the object in the correct places. Any left over materials could be used to make either individual or group math cards. Let the students use their own imaginations.

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N-NEST

EXPLORING A NEST

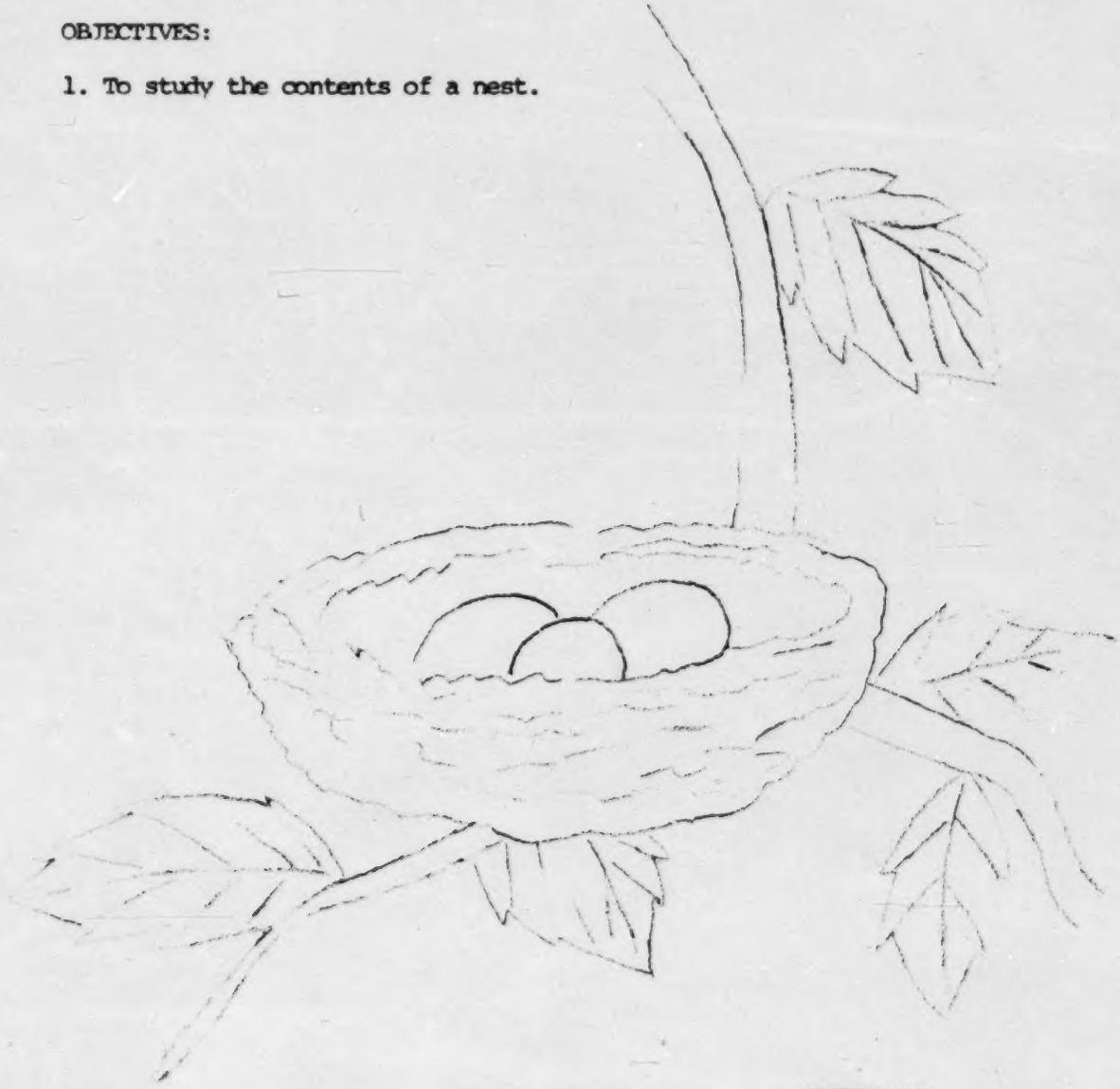
Written by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016. Adapted from the unit, "Old Bird and Animal Nests".

GRADE LEVEL: K-4

BEST TIME OF YEAR: Spring or fall

OBJECTIVES:

1. To study the contents of a nest.



MATERIALS:

Nests

BACKGROUND:

The contents of a nest can tell many interesting stories about the wonders of nature. For both the students and the teacher it will be surprising to see how a nest is constructed and what goes into constructing a nest.

This activity will allow the students to explore the contents as well as the construction of a nest. By dissecting a nest students will soon discover that nest patterns vary, material contents vary and food preferences vary among the different species.

PRE-ACTIVITY:

Are all nests the same size?
Are all the nests made of the same material?
What are some of the things you might find in a nest?
What lives in a nest? Is it just birds?
How could we find the answers to this question?
Introduce the idea of taking a nest apart to find out the answers.

FIELD TRIP:

A shelterbelt or grove of trees will have an ample supply of abandoned nests. (Be sure that the nest is abandoned.) Gather as many nests as needed, one to every three or four students. Try to get a variety of nests so that a good comparison can be made.

FOLLOW UP:

Discuss the different materials of construction.
List the animal life found.
Discuss the other findings. Such as mud, grass, twigs, thread, yarn, feathers, seeds, etc.
Try planting a nest. The procedure would be the same as that of a seed. Water it. Watch to see what kind of plants will grow.

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C-OUTDOOR TEMPERATURES

A STUDY OF OUTDOOR TEMPERATURES

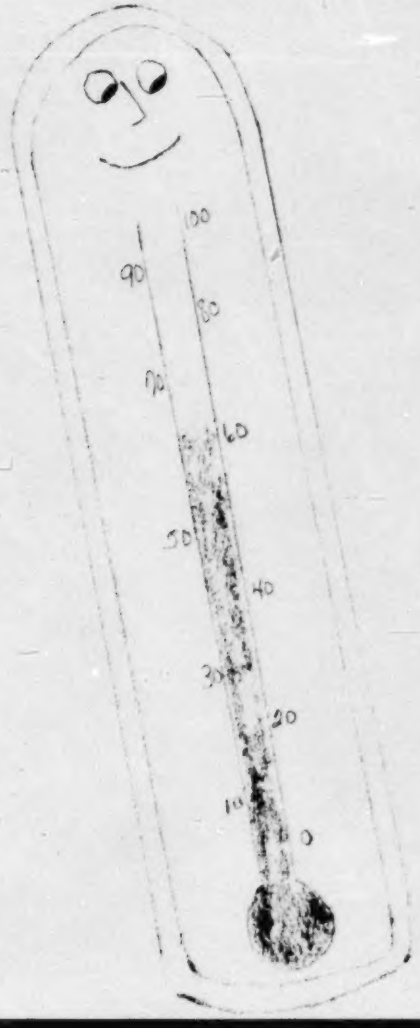
Written by Doris Marcon, Third grade Instructor, Garfield Elementary School, Madison, South Dakota. Adapted by the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

GRADE LEVEL: 2-4

BEST TIME OF YEAR: Anytime

OBJECTIVES:

1. To develop an awareness of temperature change and variations in different locations.
2. To encourage children to discover why the temperature changes and why the temperature is different in different locations.
3. To acquaint students with the thermometer and the uses of graphs in showing the differences in the different locations, at different times of the day, and also during different seasons.



EQUIPMENT:

Thermometer
Pencils
Paper

BACKGROUND:

The sun gives off light and heat energy. All life on earth depends on this energy from the sun. At certian times of the year different parts of the earth get more direct energy from the sun than they do at other times, causing different seasons and different climates. Wind and humidity affect temperatures. Land is heated faster than water and affects the weather.

PRE-ACTIVITY:

Discuss where there might be differences in temperatures.

In an open unsheltered area.
Ten feet up in the air.
Close to the ground.
Under the grass.
In a sheltered area out of the wind.
In the shade.
In a puddle or a pail of water.
In the sand or dirt.
On a sidewalk.

Where would you expect to find the warmest temperatures?
Which will heat more quickly, sand or water? Which cools quicker?

Divide into five or six groups to cover each location to be studied. This could be done on a clear day, a windy day and again on a cloudy day to show variations and differences. It may be repeated again during different seasons for comparison and study.

FIELD TRIP:

Have each group take temperatures and record the data three or four times during the day and put the information on a graph. Notes should be kept as to wind direction; whether it was cloudy or bright. (Graph samples are attached).

POST ACTIVITY:

Record the temperatures of each group on the blackboard or on a large chart for discussion and comparison. Record the differences at the different times and compare. Discuss changes if any and why they are different. Compare graphs to show the differences in the different locations and discuss why they are different.

This chart may be kept and compared with results of checking temperatures during a different season, and, if any, why?

LOCATION	9:00	11:00	1:00	3:00
Open unsheltered area				
Ten feet off the ground				
Close to ground				
Under the grass				
In a sheltered area from wind				
In the shade				
In water				
In sand or soil				
On a sidewalk				

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P-PLANT

PLANT PUZZLES

Written by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area School No. 34, Chester, South Dakota 57016.
Adapted from " Learning About Nature Through Games ".

GRADE LEVEL: K-4

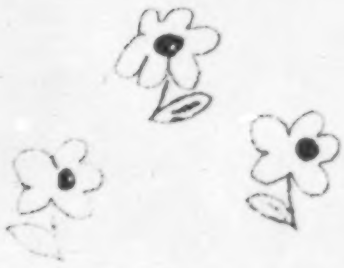
BEST TIME OF YEAR : Spring or fall

OBJECTIVES:

1. To acquaint students with plants common to their environment.
2. To acquaint students with the different plant parts.

MATERIALS:

Plants



BACKGROUND:

Every day plants play a demanding role in our lives. Plants come in many sizes and forms. Plants are used for a veriety of different things. But one thing all plants have in common are their parts. All green plants have roots, stems, leaves, seeds and almost all of them have some kind of flower. This activity or game has one objective; identifying plant parts. After playing the game, the student will be able to identify the parts of a plant.

PRE-ACTIVITY:

Can you name the parts of a plant?
Where is the flower at?
Where are the leaves at?
What is the center or main branch called?
What part of the plant grows in the soil?

FIELD TRIP:

Any area where there is an abundance of small plants is an excellent spot. With the students, study the plants. Look for visible evidence of plant parts. Study large plants as well as the small plants. Examine the different parts of the plants. How are they important? What is their function, etc.? Have each student gather two or three plants of their choice, being sure that the plants they choose have roots, stems, leaves, and, if possible, a flower.

FOLLOW UP:

Take the plants back to the classroom. Study and identify the plant and its parts. Then have each child take one plant and cut it apart to make a puzzle. Cut off the roots, the leaves, the buds, and the flowers take out any seeds and you should have just a stem left. Then, with all the parts in front of you, put the plant back just as if it were a puzzle. Have the students exchange plant puzzles with other members of the class.

or:

Try "Touch and Tell" with the parts of a plant. Put a plant part in a box, but don't let the children see which part. Choose one student to come up and feel what is in the box. By feeling, he should be able to tell what part it is.

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O-QUIET

A QUIET CORNER

Written by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

GRADE LEVEL: K-2

BEST TIME OF YEAR: Spring or fall

OBJECTIVES:

1. To create an awareness of natural sounds.
2. To relate other sense with the sense of hearing.
3. To develop an awareness of the sounds of seasonal change.

BACKGROUND:

Hearing, like all of the other senses has a definite relationship in the enjoyment and appreciation of nature. Often sight is given more attention than hearing, but to capture the total impression we need both. One will reinforce the other.

Learning to hear and to distinguish the sounds around him is a skill the child can use for the rest of his life. Sounds are all around us if we listen to them. The sounds of music, voices, birds singing, trees rustling, insects humming are everyday sounds; but what would the world be like without them?

PRE-ACTIVITY:

1. Have the students pretend to be blind -- ask them to close their eyes and listen for all the sound activity in the room.
2. Discuss how sight and sound are both needed to give us the total picture of our surroundings.

Learn or read:

QUIET

I can be as quiet as a spider or an ant,
Quiet as a butterfly;
Don't tell me that I can't.
I can be as quiet as a little fleecy cloud,
Quiet as a snowflake;
Now that isn't very loud.
I can be as quiet as a baby chick asleep,
Quieter than that;
How quiet can you keep?

-- W. L. Maughan

FIELD ACTIVITY:

Find a "quiet corner". An out of the way place on your schoolyard or some place close to the school. It should be fairly close to the school so that it can be visited quite often. If possible, have it near some trees. After discovering the perfect "quiet corner" you are ready to take the students out. This can be done in game style:

Walk very carefully, try not to make a sound. Avoid talking above a whisper. Stop every now and then to listen. Listen for the wind, animals chattering, insects singing, trees rustling. Once at the "quiet corner" avoid talking at all. Sit down, stand still or lay down and enjoy the sounds you'd miss if you didn't listen for them.

Look, too, at the little things you wouldn't see if you weren't quiet. A leaf suddenly twisting, a nest almost hidden. Touch a tree and feel its bark, the dry feel of dead leaves, or the softness of moss.

Quietly, go back in the same manner. Visit the "quiet corner" many times during the year. Note if there are any changes in the sounds.

POST ACTIVITY:

Discuss the sounds they heard, try to get a variety of different things. Do sounds sound different when you can't see them? Does the texture of things have a direct meaning on how something sounds? Does a green leaf sound different than a dry leaf? Will something soft sound different from something hard? Do you think the sounds will change with the seasons, etc.?

Just for fun, try imagining sounds at different volumes. Take a sound that is soft and imagine what it would be like real loud and hard sounding.

Take a "quiet break" every once in a while to break the day, stop everything and just listen to the sounds around us.

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R-RAIN

MEASURING RAINDROPS

Written by Cynthia Vance and Barb Hyland, Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

GRADE LEVEL: K-1

BEST TIME OF YEAR: Fall

OBJECTIVES:

1. To help students understand the "mystery" of rain.
2. To study the importance of rain and the rain cycle.
3. To measure the amount and size of rain.

MATERIALS:

Flour
Pan
Rain

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BACKGROUND:

To young children rain is a mystery -- something that falls from the sky and stops their play. This activity is designed to help students understand rain. It introduces basic concepts of rain and includes simple experiments to measure the size of raindrops.

PRE-ACTIVITY:

Discuss rain. What is rain? Where does it come from? How does it get there? What are good aspects of rain? Bad ones? Name some forms of rain. What does rain sound like? How does rain feel? How does rain fall? What is rain good for? What kinds of clouds bring rain? Are all raindrops the same size? What happens when it rains?

RAINDROPS

Rain is falling down,
Rain is falling down,
(Raise arms, flutter fingers to ground, tapping floor or palm of hand)
Pitter-patter, pitter-patter,
Rain is falling down.

or:

Pitter pat, pitter-pat, pitter-pat,
Oh, so many hours
(Patter fingers on floor, table, etc.)
Although it keeps me in the house,
It's very good for flowers.
(Cup hands, extend slowly upward)

UP GOES THE WATER

Up goes the water
Up to the sky!
From pools and puddles
Soon sunbaked and dry.

Up to form clouds
That turn into rain,
Then come down and make
Mud puddles again.

— Jean B. McKinney

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FIELD TRIP:

On a rainy day, go outside and observe the different things about rain.

Listen to the rain — describe it.
Feel the rain — describe it.
What color is rain?
What happens to the trees, plants, grass, etc., when it rains?
Do they get washed off like we do when we take a shower or bath?
How does rain come down? In what form? (drops)
Are all raindrops alike?

The following is a simple experiment in which students may measure the size of raindrops:

Put flour in the bottom of a pan and hold it out in the rain, making certain several drops fall on the flour. Bring the pan indoors and let it set for 1/2 hour. Sift the flour. The remains in the sifter represent the raindrop sizes.

Measure how much it rained by putting a can outside to catch the rain. Put the rain water in a covered jar. Do this several days and measure the different amounts of rain.

Test to see what type of clothing is best to wear in the rain, with several articles and sprinkling bottle. Pretend it's raining. Which articles of clothing does the rain penetrate? Which ones stay dry?

FOLLOW UP:

Summarize data and conclusions from the simple experiments above. Let the children describe what rain feels like or sounds like. Encourage the use of descriptive words.

The following are bulletin board ideas that could be used with this unit:

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S - SNOW

STUDYING SNOW

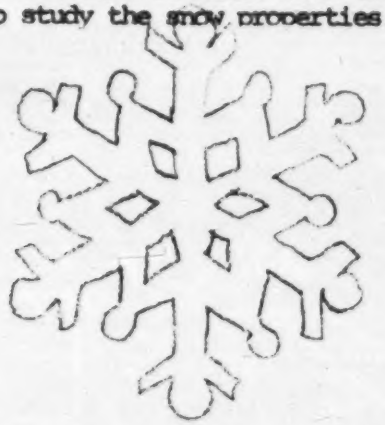
Written by Cynthia Vance, First Grade Instructor, Washington Elementary School, Madison, South Dakota. Adapted by the Interlakes Environmental and and Outdoor Education Program, Chester Area Schools, No. 34, Chester, South Dakota 57016.

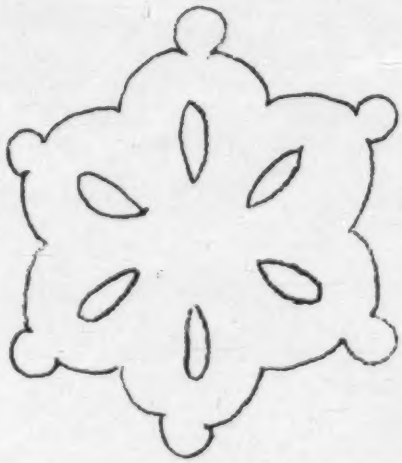
GRADE LEVEL: K-2

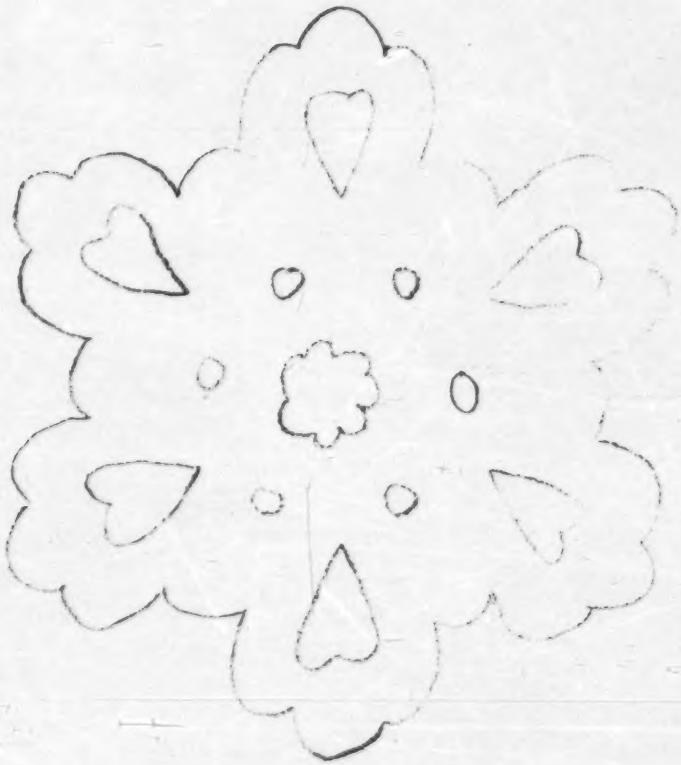
BEST TIME OF YEAR: Winter

OBJECTIVES:

1. To acquaint students with the different kinds of snow.
2. To study the snow properties.







MATERIALS:

Jars (the same size)
Snow

BACKGROUND:

Snow is an open invitation for play if there are any children around. While engaged in their play, children discover many different things about snow. They soon know that the wet snow is best for a snowman or snowballs; that the hard, crusty snow is perfect for bricks, (used in making snow forts or igloos); and that the light, fluffy snow is fun to bounce and run around in. After these observations have been made, introduce the children to an activity that will encourage a closer observation.

PRE-ACTIVITY:

What is snow?
Are snowflakes all the same size?
How does snow melt? (physically)
How does ice melt? (physically)
Do they melt the same way?
If you have a jar full of snow will you have a jar full of water? Why?
How do you think we could find the answers to these questions?

FIELD TRIP:

After a new fallen snow, take the students on a short excursion around the school yard, or a nearby park. Have the children observe the differences between the new snow and the old snow. Notice the color, and the texture. Taste it. Feel it.

Collect samples of the snow, some of the old and some of the new. Make sure that each jar has the same amount of snow in it. (It is important that each jar is the same size.) The students can work in couples or groups.

FOLLOW UP:

Take the collected snow back to the classroom to make observations. Let the students make their own discoveries. Try comparing the melting process of snow to ice.

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T-TREES

ADOPT A TREE

Written by Barb Hvland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

GRADE LEVEL: K-2

BEST TIME OF YEAR: Fall

OBJECTIVES:

1. To develop the habit of accurate observation of our environment.
2. To develop an appreciation of trees and the changes they go through as the seasons change.

MATERIALS:
Paper
Crayons
Tree

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BACKGROUND:

Everything in our environment undergoes a cycle of change. These changes are constantly taking place in different stages. Some of these changes are noticeable while others go on almost unnoticed. It is important that students realize that the world they live in is changing. And why it is. A tree is a good example of a change that is relatively easy to see. So let's adopt a tree and follow it through some of its changes.

PRE-ACTIVITY:

Name some things you know change in the way they look.
When do these changes take place?
Does everything change at the same time?
Why do you think things change?

PROCEDURE:

Since trees assume their most dramatic changes in the fall, a good time to begin this unit would be shortly after school starts. After a brief introduction of changes in our environment, discuss the purpose of adopting a tree with the class.

1. Adopt a tree. Choose a tree that can easily be observed. The tree should be close to the school, so that it can be visited as often as the students want to. It's nice if the students can see the tree from the classroom, too.

2. Record the changes as they take place. This can be done in various ways; an easy way for younger children is to draw the changes. Each child can make a picture file on the tree. As dramatic changes occur, observe the tree closely, record the information, date it and place it in the file. Students will soon become aware of the changes in their own. In the fall, watch for change of color and leaves falling. In the winter, observe the tree getting ready for spring. The typical leaf is born inside a bud in the winter. In the spring, watch for the leaves and other signs of spring. Carefully watch, for next the tree will be dressed in her summer dress.

3. At the end of the school year each child should have 10-15 pictures in his file. Each picture will depict a different stage of change. Talk about the changes that took place.

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U-UGLY

THE UGLY TRIP

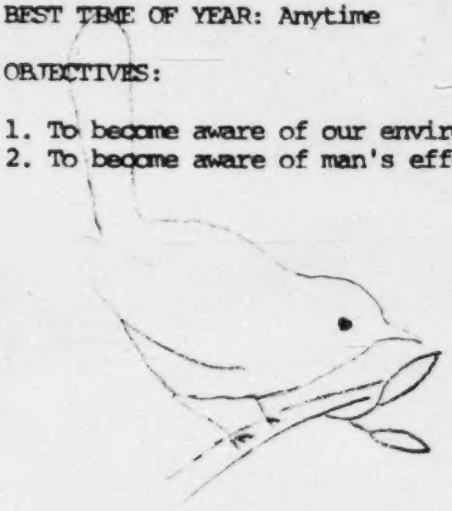
Written by Gloria Lutter, Second Grade Instructor, Washington Elementary School, Madison, South Dakota. Adapted by the Interlakes Environmental and Outdoor Education Program, Chester Area Schools, No. 34, Chester, South Dakota 57016.

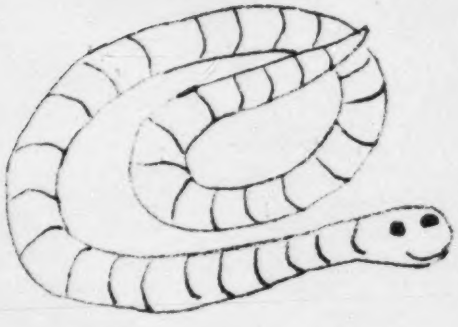
GRADE LEVEL: 2-4

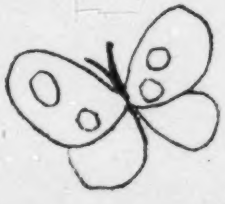
BEST TIME OF YEAR: Anytime

OBJECTIVES:

1. To become aware of our environment and its changes.
2. To become aware of man's effects on the environment.







MATERIALS:

Two wide open eyes
Paper
Pencils
Poloroid Camera (optional)

BACKGROUND:

Our environment is full of exciting things and through our senses we form many opinions about it. Through our eyes we can see the world and what we see is our opinion of it. Parts of our environment are ugly; but whether it is ugly or beautiful will depend on the person and his background.

This activity is designed as a unit to let the students express their own opinion about the world they live in. Through this activity they will become aware of man made and natural things, and how nature and man affect their environment.

PRE-ACTIVITY:

What is meant by man made things?
What is meant by natural things?
What is the difference?
How does nature change things?
How does man change things?
Is change necessary? Why?

Have the students stop and think about their environment. Think of things they consider ugly. List some of the things the students consider ugly. Does everyone else think they are ugly? Are the things listed natural or man made?

FIELD TRIP:

Any area, with a variety of natural objects. The Wetlands, school yard, or a park area are excellent study areas.

Have the students find things either man made or natural that are ugly to them. Encourage the students to go off by themselves; take their time and look up and down and all around. After they find the ugly object, take a picture and write your opinion. Remember where it is and decide whether or not it's natural or man made.

POST ACTIVITY:

Back in the classroom draw the best possible picture of the ugly thing. Decide whether man made it ugly and if he could change it, or if nature made it ugly and if nature could change it. Have the students give their reasons on why they thought it was ugly. Does everyone else think it's ugly?

ANOTHER FOLLOW UP:

In a couple of months, take the same field trip and look at the same ugly things. Has is changed? If so, how? Who changed it? Man? Nature? Draw another picture of your "ugly" thing, just the way it looks now.

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V-VALUES

WHAT ARE YOUR VALUES?

Written by Shari Dayton, Third Grade Teacher, Lincoln Elementary School, Madison, South Dakota. Edited and adapted by the InterLakes Environmental and Outdoor Education Program, Chester Area Schools, Chester, South Dakota 57016.

GRADE LEVEL: 2-4

BEST TIME OF YEAR: Anytime

OBJECTIVES:

1. To emphasize the development of positive attitudes and values of our environment.

BACKGROUND:

Our values permeate our thoughts and play a deciding factor in our life style. It is these values that have led us to our present environmental crisis and will now, hopefully, guide us from it. Our values need to be questioned, evaluated and the consequences of them understood. The classroom is an ideal setting for this probing to occur. Therefore, this unit deals with values as they relate to the environment.

A value is defined as "biologically determined and culturally engendered predispositions to thought and action". It is not known for certain how or when values are formed, but it is believed they are formed in a child's early years through personal experience with influence from training. Values cannot be taught -- a child has to experience and internalize possibilities before accepting certain values.

The students will engage in activities both indoors and out that will cause them to understand what values are, to question, analyze, explore the consequences, and reach new understandings of their own values.

ACTIVITIES:

Begin with a discussion of values, the purpose being to survey the students' ideas and formulate and agree on a common definition of value.

Can anyone use it in a sentence?

How would you explain "value" to someone who didn't know what it was?

From their suggestions a definition should be formulated that shows value is something one likes and thinks is important, what one believes about things.

Do you have values?

How do you know?

Do your values ever change? Do you think or behave differently from last year?

Do other people have values?

How can you tell?

Are their values the same as yours?

Do you think people should have the same values as you?

Why or why not?

Explain to the students that they are to use their five senses at school, home and outdoors to decide upon the things they place high value on. Prior to the listing of these values, take the class for a walk and observe things in the environment that can be valued, such as buildings, parks, cars, plants, streets, etc. Have them list the things they place value on. Keep these lists for future reference.

This activity involves clarification of the term "environment".

Has anyone heard of the word "environment"?

What does it mean to you?

Following the discussion, formulate a definition of environment. It should convey the idea that it refers to everything around us.

Prior to the following outdoor activity, explain that the students will be observing their environment and deciding what the townspeople value.

What will we look for in the outdoor environment that will tell what our town values? (number of parks, industries, sports areas, conditions of houses, yards, amount of litter, ect.) Because the students cannot walk through the entire town, this would be an ideal time for using a city map.

Following the walk, discuss what values they think the townspeople hold in relation to the areas they discussed above.

What are your own values in relation to those above?

Are they they same or different?

Do your values affect our outside environment? How?

FIELD TRIP:

The students will go outside and, if possible, bring back to class something ugly and something beautiful in the environment. If they can't be brought, they should remember them for discussion purposes. After returning, they may show them as they discuss and later label and display them.

What do you think is beautiful? Why?

Do your values affect its beauty?

Why do you think it is ugly?

Do your values affect its ugliness?

If your values changed, would it change its ugliness or beauty?

Return the lists of things valued that the students wrote at the beginning of the unit.

Do you want to make any changes in your list?

If so, they could cross out and make any additions.

POST ACTIVITY:

Using the above lists, the students will write a cinquain about the thing they value the most.

From your new list, pick the thing you value the most.

Write a 5 line description about it.

Use 1 word to name what it is.
Use 2 words to describe it..
Use 3 words to tell about what it does.
Use 4 words to describe how you feel about it.
Use 1 word which to you means the same as the first.

walls
big small
fences stops divides
keep one from another
tall

The students will make a collage depicting what they place high value on. It may take whatever form they want -- words, pictures, etc. They may draw in appropriate pictures which can't be found.

Upon completion of this unit, the students can discuss if their values affect the environment, and how. The collages can then be placed around the room for a "mini art show". They will browse and have the opportunity to verbalize about their values and support them.

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W-WIND

WHAT HAPPENS ON A WINDY DAY?

Written by Barb Hvland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

GRADE LEVEL: K-2

BEST TIME OF YEAR: Any windy day

OBJECTIVES:

1. To acquaint students with the characteristics of wind.
2. To acquaint students with what causes wind.
3. To acquaint students wit the effects of wind on our environment.

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BACKGROUND:

Wind is air that moves rapidly. It is formed when air close to the ground becomes warm. It then rises and cold air from above takes its place. Differences in temperature cause various kinds of air movement. These air movements can cause storms. Changes in wind conditions make changes in weather.

PRE-ACTIVITY:

What is wind?
What causes wind?
Can you taste it?
Can you feel it?
Can you see it?
What is a small wind called?
How is the wind good to us?
How is the wind harmful to us?

FIELD TRIP:

This activity can be done in the school yard. Outdoor activities can include some, or all, of the following:

1. Ask pupils to follow simple directions such as walking or pointing in the direction of the wind as indicated by tree branches, grass or anything else?

2. Observe: the evaporation of water in a water puddle on a windy day. Trees in the wind; the flag.

3. Listen to the sounds of the wind. Sometimes it howls, other times it whistles. Does it make other sounds? Can you always hear the wind?

4. How does the wind feel when you run against it? Run away from it? Stand still? Is it harder to open a door when the wind is blowing than when there is no wind? Why?

5. Let the pupils sway their bodies as the wind blows. Have the students dramatize the wind, by observing the trees, grass, leaves, etc.

6. Look for the good effects on thw wind; such as seed dispersal, cloud movement, evaporation, windmills, kite flying.

7. Look for the bad effects of the wind. Such as soil erosion, etc.

POST ACTIVITY:

Back in the classroom have the students describe the sounds they heard. How the wind felt. List the observations they noticed, what the wind was doing and the good and bad effects of the wind.

For a music follow up, let the pupils sway their arms or bdoies to piano or record rhythms. Play a "running" tune as the children "run in the wind". Create rhythm exercises where the children use scarves or crepe paper streamers.

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For an art follow up try "Huff and Puff Designs". Give each child a piece of paper with a blob of paint on it. Then give each child a drinking straw and,without touching the paint, blow it around the paper in any design that he likes. The first attempt is likely to look like a tree or a plant. Smaller blobs of brighter colors can be blown around to look like flowers. As the child learns how to handle the straw and paint, the designs will become more original. This activity is an excellent way to introduce the secondary colors by blending two or more colors together.

X-XYLEM

HOW A PLANT DRINKS

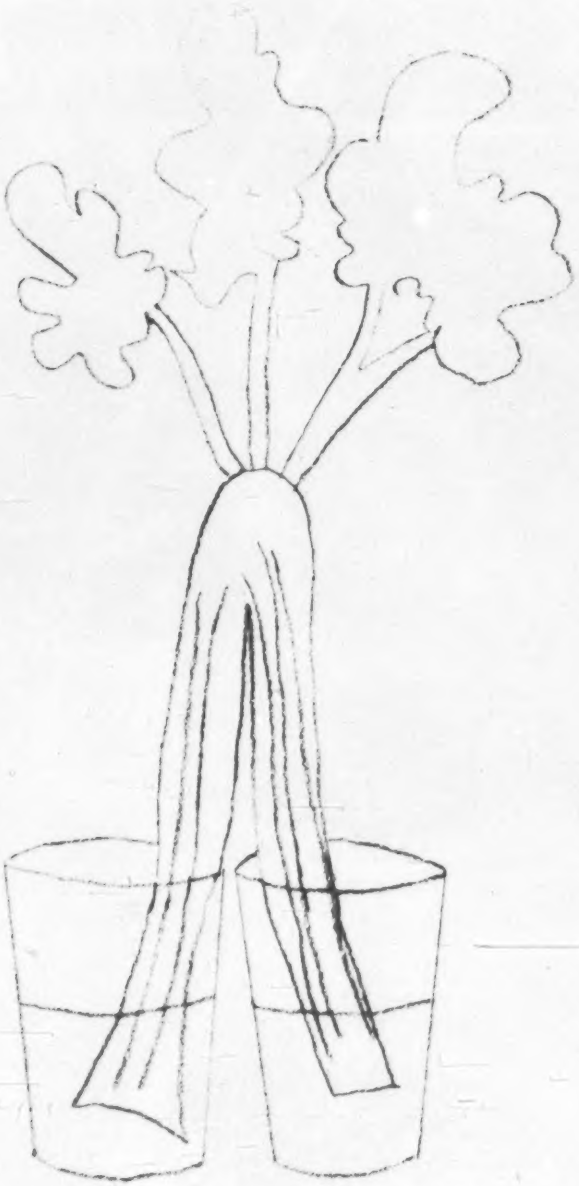
Written by Carol White, Elementary Instructor, Lincoln Elementary School, Madison, South Dakota. Adapted by the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

GRADE LEVEL: K-2

BEST TIME OF YEAR: Anytime

OBJECTIVE:

1. To introduce the concept of how food and water is transported through the plant.



MATERIALS:

Carrot
Celery
Glasses
Food coloring

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BACKGROUND:

After a study on the purpose of roots and stems and how a root and stem works; introduce the concept of how the food and water is transported throughout the plant. Xylem is a part of the plant that carries food and water upward through the plant. Xylem carries food and water up from the root through the stem to the leaves, buds and flowers. A simple experiment with a carrot, a stalk of celery and colored water will show the students how this process works.

PRE-ACTIVITY:

1. Do you know how plants receive their water and food?
2. How does the flower get its food and water?
3. How does the leaf get its food and water?

ACTIVITY:

Begin with the carrot experiment. Ask your students: How does water go from the soil into a plant? After a short discussion, color some water with green ink and put a carrot into it. A few hours later, cut the carrot. What happened?

ACTIVITY:

A simple way to demonstrate how water goes up a plant is with colored water and celery. Note the small tubes in the celery stalk. Show the students the small tubes. Split the celery stalk part way up. Put one part of the celery in a glass of green water and the other part in a glass of red water. In a matter of a few minutes, the small tubes will change colors. What has happened? Make observations.

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Y - YOU

YOU ARE IMPORTANT

Written by Barb Hyland, Instructor, the Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota 57016.

GRADE LEVEL: K-2

BEST TIME OF YEAR: Anytime

OBJECTIVES:

1. To help students discover that they are individuals.
2. To help students become aware that an individual is important.

BACKGROUND:

Children may be alike in some ways but they all are individuals living in a world all of their own. Like a snowflake, no one is exactly alike. In today's world it is important to be an individual. Too often students are put into groups and never given the chance to really express themselves. If you stop to think about them; they are the same age, go to the same school, do the same work, eat the same lunch, nothing varies in their daily routine. Students need to have the feeling of being important and why not? After all, they are!

Just remember this about yourself and your students: Whoever you are, you are important. There is some work that will never be done if you don't do it. There is someone who would miss you if you were gone. There is a good reason for becoming better than you are. There is a place to be filled that you alone can fill.

ACTIVITY:

After a short discussion on how people vary, do the following activities; play these games with your students to stimulate their interest in how they differ:

1. I Have a Friend

   I have a friend that you all know
   and _____ is her (his) name
   I have a friend that you all know
   and _____ is her (his) name.

   I see a boy (or girl)
   I see a boy whose shirt is green,
   shirt is green, shirt is green.
   I see a boy whose shirt is green,
   Who are you? (I am _____).

2. Hand a student a mirror. Ask him or her to tell what they see in the mirror. Perhaps they will say, "I'm a girl (boy) with brown hair and blue eyes". After all the students have had a chance to do this, ask what the mirror doesn't show. For example: (I like hamburgers). Children begin to learn how they are different and alike - in appearance and preferences.

3. Make a chart to display some important items about your students. Put the students name down the side of the chart. Across the top of the chart make divisions for height, weight, color of hair and eyes, favorite kind of weather. (You may want to add others). List the characteristics for each pupil. Then discuss the chart and make some comparisons; for example: How many pupils have green eyes? blue eyes? brown eyes? Even in a small of children many differences can be noted.

4. Or, try working with some of the children's own "Special Parts". Each of the following activities involves the student with some activity that only he can do.
   a. Make a foot print with water on the sidewalk or with fingerpaing on a long piece of paper.

   b. Make cut out cookies, for the child's cookie draw around his hand. Cut it out and bake it.

   c. Make finger print pictures. Blot a finger in dry tempra paint and press on paper. Create a picture out of the print.

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Z-ZOO

THE INSECT ZOO

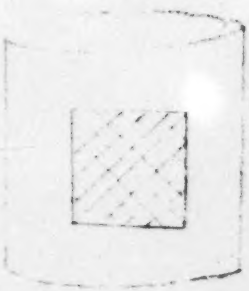
Written by Barbara Hyland, Instructor, The Interlakes Environmental and Outdoor Education Program, Chester Area Schools No. 34, Chester, South Dakota. 57016

GRADE LEVEL: K-4

BEST TIME OF YEAR: Spring or Fall

OBJECTIVES:

1. To observe closely some of the insects common to the environment.
2. To add some interest to common curiosity about the insect world.



MATERIALS:

Anything that is suitable for an insect cage.

BACKGROUND:

Children are easily amused by anything that crawls, flies or creeps. How many times have your students brought you a small jar containing some insects? Then, in turn, the jar is set on a shelf and forgotten. Why not utilize the jar, the insect and the student's interest and create an insect zoo? This could be used as a follow up to Trapping Insects and Kinds of Bugs.

Simple cages can be made from almost any container that you happen to have on hand. Directions for some cages are included in this unit. The students will be in charge of cleaning the cages and feeding and watering the insects. Insects will have to be fed a similar diet which they are used to. This will probably require some research, but with the younger children this can be accomplished, they love to look for information. Have on hand simple books about insects. With the guidance of the teacher, the students should be able to help.

PROCEDURE:

1. Decide on the cages you want to make; gather the materials needed. These can be made from plastic boxes, jars, lamp chimneys, oatmeal boxes, Pringle boxes, etc. Fill the bottom with some dirt. Top this with grass sod. Insert a twig or small branch for the insect to climb. Be sure to water the soil.

2. Take a field trip to collect insects or set insect traps. If there are plants, trees and grass on the school grounds, this excursion could be accomplished there.

FOLLOW UP:

1. Collect the information on the feeding habits of the insects caught.

2. Try to make the cages resemble the natural habitat of the insects.

3. Watch and study the insects, record the changes of the insects and any other data.

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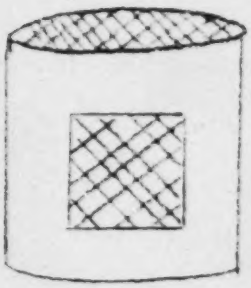
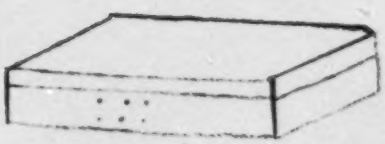
The following are ideas and directions for some insect cages:



This cage is made from an oatmeal box. Cut a 5" x 5" window out of the side of the box. Attach a piece of screen over this window. Line the bottom of the cage with tin foil and fill the bottom with soil and top that with sod. Cover the top of the cage with screen.

Fill the bottom of a jar with soil and top that with sod. Insert a twig and cover the top of the jar with screen.

A cute cage can be made from a plastic pill box. Fill the bottom of the box with soil and top it with sod. Insert a twig. Be sure that there are air holes in the box.



This unique cage can be made from a lamp chimmney and the lid of an aerosol can. Simply set the chimmney in a lid and fill the lid with soil and sod. Insert a twig. Cover the top of the cage with screen.